Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.

In the Matter of	)	
	)	
Amendment of Part 22 of the Commission's Rules	)	WT Docket No. 03-103
To Benefit the Consumers of Air-Ground	)	
Telecommunications Services	)	
	)	
Biennial Regulatory Review – Amendment of	)	
Parts 1, 22, and 90 of the Commission's Rules	)	

VERIZON AIRFONE'S COMMENTS ON NOTICE OF PROPOSED RULEMAKING

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I. Introduction and Summary.

The Commission should amend its existing Part 22 rules governing the provision of air-ground service to allow Verizon Airfone the flexibility to offer new and innovative broadband services. Under the Commission's current rules, air-ground licensees are restricted to using narrowband technologies that facilitate the provision of voice and low-speed data services but prevent the provision of broadband service. Moreover, the rules require that licensees share the allotted air-ground spectrum, with no exclusive access to spectrum for any individual licensee. These technical restrictions and the limited amount of spectrum allotted to licensees under the current rules make it impossible for Verizon Airfone to provide broadband services. To provide Verizon Airfone with the ability to offer broadband services, the Commission should modify its technical rules to permit the deployment of broadband technologies and adopt an "exclusive use" licensing approach that will enable Verizon Airfone to offer broadband services. These modifications will provide consumers with new, innovative options for in-flight communications.

II. Background

Verizon Airfone is the sole provider of air-ground service in the 849-851/894-896 MHz band ("800 MHz band") for passengers on commercial aircraft in the United States. Verizon Airfone uses narrowband technology to provide voice and data service to airline passengers. Passengers, in turn, use Verizon Airfone to conduct telephone calls and exchange data with people on the ground.

While the Commission initially made six licenses available in the 800 MHz band for the provision of air-ground service, Verizon Airfone alone was willing to make the

substantial investment, and take the substantial risk, necessary to deploy and to continue to provide this service. As a result, Verizon Airfone stands as the sole provider of air-ground service on commercial aircraft in the 800 MHz band and continues to upgrade its service to better meet customer needs. Just last year, Airfone deployed its JetConnect product, which lets passengers access news, instant messaging, email and games via laptop computers or personal data assistant devices. However, limitations associated with narrowband technology still leave many customers wanting more flexible communications options.

Market research clearly indicates that there is significant consumer demand for in-flight broadband services. For example, a market study coordinated by the German aerospace agency DLR and key technology partners indicates a strong demand for a wide range of broadband services while flying commercial and general aviation aircraft.[1] More than half of the airline passengers surveyed indicated that the ability to use a phone or laptop in flight was "very important" or "quite important" when selecting an airline. Further, survey data indicated that 74% of North American passengers indicated that the ability to use a phone or laptop in-flight was "very important" or "quite important." The study also indicated that 66% of respondents wanted company network access, 62% of respondents wanted access to business news, 47% of respondents wanted access to business research, 31% of respondents wanted access to in-flight printing, 25% of respondents wanted access to online banking, 18% of respondents wanted access to networked games, 16% of respondents wanted access to video conferencing, and 15% of

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[1] IST-2001-37466 Wireless Cabin D5 Market Survey and Recommendations, *available at* www.wirelesscabin.com, last accessed on September 11, 2003.

respondents wanted access to e-commerce. In short, consumers are demanding in-flight broadband access.

Verizon Airfone therefore needs the ability to offer broadband service to passengers on commercial air transport. Doing so would, in effect, take the type of Internet connection that many passengers have at home and/or at work and transport it into the airline cabin. However, the current regulatory regime prevents Verizon Airfone from offering broadband service. Accordingly, Verizon Airfone seeks the regulatory flexibility needed to give airline passengers high quality broadband service.

III. A Robust In-Flight Communications Market is Developing to Meet Consumer Demand.

While the NPRM correctly notes that Verizon Airfone is the only commercial air-ground radiotelephone licensee now holding a license for the 849-851/894-896 MHz band, [2] there are a growing number of intermodal competitors for the provision of in-flight communications services. Indeed, within the next 6 to 18 months, a number of competitors will be offering a variety of products and services to the flying public. The technology includes both narrowband and wideband satellite services and other proprietary data compression technologies.

Satellite providers are a significant intermodal competitor in the airborne communications market. Satellite providers are poised to offer commercial services that will compete with Verizon Airfone and offer consumers more communications options while in flight. For example, the Commission approved Boeing's "Connexion" service

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[2] Amendment of Part 22 of the Commission's Rules To Benefit the Consumers of Air-Ground Telecommunications Services, WT Docket No. 03-103, FCC 03-95 (Apr 28, 2003) ("NPRM"), ¶12 ("At present, there is only one commercial air-ground radiotelephone licensee with an active license – Verizon Airfone . . . .) .

for use in flights over the United States in December 2001, and Boeing plans to offer this service on commercial flights in both the United States and Britain soon. Connexion is an in-flight broadband service that allows airline passengers to browse the Internet, check emails, access corporate intranet systems, and access streaming audio and video services.[3] The service offers speeds up to 5 Mbps on flights equipped with two-way satellite routers to handle data traffic. Last February, British Airways began a trial of this service on flights between London and New York.[4] Lufthansa and Scandinavian Airline System have agreed to use Connexion on their long-haul aircraft beginning in 2004,[5] and All Nippon Airways has signed a letter of intent to use Connexion on their long-haul aircraft.[6]

In addition, Boeing is likely to start offering wireless applications that allow passengers to use their own Wi-Fi devices on airplanes. For example, Boeing recently announced it had received the necessary authorization from British and German aviation authorities to offer airborne wireless applications enabling passengers to use their own 802.11b Wi-Fi devices within the airline cabin environment.[7]

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3 *Connexion by Boeing Selects AT&T Digital Media Centers to Provide High-speed Internet Connectivity,* AT&T Press Release, June 18, 2002.

4 *The Economist: Airlines consider in-flight broad access,* Ebusinessforum.com, February 27, 2003.

5 www.boeing.com/news/releases/2003/q2/nr_030527j.html; www.boeing.com/news/releases/2003/q3/nr_030702j.html.

6 www.boeing.com/news/releases/2003/q3/nr_030909j.html.

7 *Boeing, Lufthansa cleared for in-flight wireless,* m-Travel.com, June 4, 2003.

Iridium Satellite has re-launched its international satellite mobile phone service. This service includes phone services for aircraft.[8] Honeywell's Airsat product lets those flying on private jets make calls over the Iridium network.[9] And, last July at the international Paris air show, Iridium announced a deal to offer Iridium communications on the Federal Aviation Administration's fleet of aircraft.

In sum, although Verizon Airfone is the only licensee currently operating in the 800 MHz air-ground spectrum, consumers will soon have an array of choices when they seek to communicate while airborne.

IV. The Commission Should Modify Its Rules to Permit Verizon Airfone the Flexibility to Bring Innovative, New Broadband Services To Market.

The Commission should modify its rules to permit Verizon Airfone to offer a broadband communications service. The recent adoption of wireless access points, the maturing of packet voice technologies, and robust spectrum-efficient wireless data networks provide the opportunity to finally extend ground-based technologies to the air at competitive prices. New airborne broadband services would include unrestricted Internet browsing, real-time email access, voice over Internet Protocol, 802.11-enabled cellular voice service, and audio service via wired and Wi-Fi hot spots throughout the aircraft cabin.

In addition to offering consumers enhanced voice and data services via wired arrangements with laptops and personal data assistant devices, with broadband technology, Verizon Airfone would also be able to offer customers certain wireless

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8 *See The Return of Iridium, Forbes.com, November 30, 2001.*

9 *Id.*

communications within the cabin. These wireless applications would enable passengers to engage in a host of wireless functions including everything from seat-to-seat communications via personal data assistants and laptops to downloading MP3 files. Passengers could also set up virtual private networks with their corporate LAN, have video conferences, have Net meetings and engage in multi-player video games. With the ability to stream vital data from the ground to the plane and vice versa, broadband technology would also provide the airline industry with new options for upgrading operational communications by, for example, enabling pilots to communicate important information about equipment functions to repair crews on the ground.

While broadband capability represents a valuable new communications alternative for airborne consumers, the Commission's current Part 22 rules are not designed to accommodate broadband technology. Rather, the Commission's rules limit air-ground licensees to narrowband communications services by specifying a channel allocation scheme that employs narrow control channels and communications channels with bandwidths of only 3.2 kHz and 6 kHz, respectively.[10] Such restrictions simply do not allow for the provision of broadband services. The provision of air-ground broadband service would require at least 1.25 MHz of spectrum air-to-ground and 1.25 MHz of spectrum for ground-to-air plus an appropriate amount of "guard band" spectrum to ensure that there is no harmful interference to services in adjacent bands. On September 2, 2003, Verizon Airfone was granted an experimental license to validate the performance of broadband technologies, antenna designs and real-world data transfer rates. Once Verizon Airfone completes its testing, it will have the necessary data to

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[10] *See* 47 C.F.R. §§ 22.857-22.875.

further refine the technical requirements to support broadband technology. However, current data makes clear that unless the Commission modifies its rules to permit more flexibility in use of the air-ground spectrum, Verizon Airfone will be unable provide broadband service to compete with other in-flight broadband providers.

The Commission should therefore modify its Part 22 rules in a way that will ensure consumers have the option of innovative new broadband services in the air-ground spectrum. In particular, in addition to establishing more flexible technical rules, the Commission should adopt a licensing scheme that provides air-ground licensees with "exclusive use" of the amount of air-ground spectrum required to support broadband technology. The Commission's Spectrum Policy Task Force has previously noted the value of the "exclusive use" licensing model.[11] In contrast with shared spectrum arrangements, "exclusive use" licenses afford licensees more flexibility in responding to market forces, and often result in more efficient and effective use of spectrum. Given the unique circumstances in the air-ground market – where the amount of spectrum is limited to only 4 MHz and where there are no other licensees in the band – the Commission should adopt an "exclusive use" licensing approach that will allow Verizon Airfone to have exclusive access to a sufficient portion of the 800 MHz air-ground spectrum to enable it to deploy broadband service.

Such a modification is necessary. The technical reality is that the amount of spectrum currently assigned exclusively to Verizon Airfone – 64 kHz for a block of twenty control channels -- is insufficient to support a broadband offering. It simply does not provide Verizon Airfone with enough spectrum to operate an effective broadband

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[11] *See* Spectrum Policy Task Force Report, Nov. 2002, ET Docket No. 02-135, at 42 – 43.

service. While Verizon Airfone currently has access to substantially more spectrum – via the shared communications channels –the shared use of these channels will not enable it to deploy a broadband service which requires the exclusive use of paired 1.25 MHz channels. Verizon Airfone must have "exclusive use" of at least this much spectrum in order to provide a high quality broadband service. Moreover, for a limited transitional period, Verizon Airfone would need to operate both its broadband and narrowband networks in parallel. This would require even more spectrum (close to 4 MHz) to enable Verizon Airfone to seamlessly transition from its narrowband services to broadband services.

Additionally, survey data collected by Verizon Airfone and others indicates that while consumers desire voice, email, and Internet services while flying, they expect these services at low cost. To provide a wide range of broadband services to the end user, the customer airlines and other users, deployment costs must be held to a minimum. This requires leveraging existing infrastructures and deploying off-the-shelf technologies as much as possible. To develop a viable broadband product, Verizon Airfone must therefore be able to leverage its existing air-ground spectrum, existing IP-based technologies, and its existing terrestrial network. These components will provide the consumer the widest variety of communications choices at a competitive cost. Additionally, as IP-based technology matures, improvements can economically be integrated into the network, minimizing costs and lag time. However, Verizon Airfone will be unable to effectively leverage its existing network and technologies to develop the most innovative broadband offering possible unless the Commission modifies its rules to accommodate broadband services in the existing air-ground spectrum and modifies

Verizon Airfone's license to facilitate "exclusive use" of a sufficient amount of spectrum to support broadband services.

As the only licensee in the 800 MHz air-ground band, Verizon Airfone currently has the *de facto* ability to use almost all (except for the other five unlicensed control channels) of the allocated spectrum. Nonetheless, in addition to the issues discussed above, several factors weigh in favor of giving Verizon Airfone *regulatory* exclusivity too. In particular, there is very little spectrum in the band. To justify the substantial investment needed to use the spectrum to provide air-ground broadband service, Verizon Airfone will require some assurance that it will be able to use the spectrum it needs to support broadband in the future. If other entities start operating in the spectrum Verizon Airfone utilized for broadband, Verizon Airfone would be unable to deploy broadband service effectively because there would not be a sufficient amount of spectrum available. Indeed, in such a situation, *no* entity would be able to provide effective broadband service using the commercial air-ground spectrum because there is simply not enough spectrum currently allocated in the 800 MHz band to accommodate multiple carriers seeking to offer broadband services. Granting Verizon Airfone an "exclusive use" license would avoid this result. Moreover, if the Commission determines that the lack of spectrum is preventing potential competitors from entering the air-ground market, it can explore allocating additional spectrum to meet any demand for entry.

Not only do the technical practicalities of transitioning to broadband weigh in favor of an exclusive assignment of spectrum to Verizon Airfone, such an approach is reasonable given the history of the air-ground spectrum and the significant investment Verizon Airfone has made to operate in the air-ground communications market. In the 13

years since the Commission allocated the air-ground spectrum and made six licenses available, Verizon Airfone is the *only* carrier that has undertaken the sizeable investment necessary to offer and maintain service in the spectrum. (AT&T Wireless had a limited air-ground operation, but discontinued it in 2002). Verizon Airfone alone has taken the substantial business and financial risks necessary to meet the challenge of using the commercial air-ground spectrum to bring in-flight data services to customers. It has invested enormous amounts of capital to develop a robust and extensive network consisting of over 114 base stations, which provide service to over 4,500 planes every year, including over 1,500 commercial planes.

In addition to building its existing network infrastructure, Verizon Airfone has also had to work hard to develop solid relationships with its airline partners and to develop the requisite aeronautical expertise, which is critical to understanding and servicing the needs of airline clients. In so doing, Verizon Airfone has more than demonstrated its long-term commitment to doing business in the air-to-ground market. Having taken all of the up front risks of launching and maintaining a business which for the past 13 years has offered consumers the only ability to communicate with the ground, Verizon Airfone should now be given an "exclusive use" license so that it can expand its offerings to better serve consumers and to compete in the emerging in-flight broadband market.

Granting Verizon Airfone an "exclusive use" license would also make the most efficient use of the spectrum. If the past decade is any guide, it is likely that few, if any, carriers will ultimately make the necessary financial and business commitments to deploy air-ground service in the 800 MHz band. Forcing Verizon Airfone to continue to have

access to the air-ground spectrum only on a shared basis would mean that the spectrum would not be put to its highest and best use. Verizon Airfone should be afforded the flexibility to expand consumer choice by offering broadband services. In short, given that Verizon Airfone alone has taken all of the business risk and made all of the investment over the last 13 years to serve this market, and that no other carrier has demonstrated a commitment to operate in the 800 MHz band, the Commission's rules should encourage, not constrain, Verizon Airfone's ability to expand its service offerings to include the most advanced broadband technology possible.

Moreover, while the Commission notes its "rigid structure for licensing service providers,"[12] the Commission's rules are *not* primarily responsible for the lack of competitive entry in the spectrum. Rather, various economic and industry-related factors including those related to doing business with the airline industry, that are unrelated to the Commission's rules, present formidable challenges to entering the air-ground communications market. Operating a successful air-ground business requires a significant expenditure of resources and capital. New entrants have to bear the expense of deploying equipment on the ground as well as on aircraft. Consequently, the economics of entering the 800 MHz air-ground market are likely unattractive to many carriers. Further, air-ground carriers must form a partnership with the airlines to access their potential customers. A carrier could make the substantial financial investment necessary to deploy its network but be unable to enter the market because it cannot secure the necessary partnership agreements with the airlines. Therefore, unlike in most businesses where an entity can start offering its products and services to customers as

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12 *Id.*

soon as it develops them, an air-ground carrier must clear the additional hurdle of obtaining an agreement with the airlines before it can place its equipment aboard an aircraft and begin offering service. Additionally, airlines expect their communications partners to understand aeronautical engineering standards, installation practices, and FAA certification regulations. Consequently, the nature of the business relationships between commercial airlines and air-ground carriers as well as the aeronautical expertise required of new entrants present unique business risks and challenges that serve to undermine potential new entrants' incentive to enter the market.

Accordingly, the lack of competitive entry in the 800 MHz air-ground spectrum is more a function of market forces than the Commission's regulatory framework. Consequently, even if the Commission were to relax the financial requirements in its Part 22 application rules, these changes would not diminish the business risks and challenges associated with entering the air-ground communications market.

Permitting Verizon Airfone to compete in the market for broadband airborne communications is also in the public interest because it will increase consumer choice by providing the flying public with a valuable new communications option. Additionally, enabling Verizon Airfone to offer broadband services is consistent with the Commission's goal of promoting innovative new service offerings to consumers in the air-ground band.[13] As Chairman Powell has noted, "the economy and consumers benefit when spectrum policy removes barriers to innovation."[14] Moreover, the grant of an "exclusive use" license would by no means forestall competition in the air-ground

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13 *See* NPRM ¶ 5.

14 *FCC Chairman Michael K. Powell Statement at the Wireless Innovators Showcase*, News Release, May 12, 2003.

communications market. Instead, as noted above, Verizon Airfone would be one of several competitors in the burgeoning in-flight communications services market. The existence of the competition discussed above will help ensure that Verizon Airfone has the proper incentives to develop more innovative products such as broadband services and to offer those services at competitive prices.

V. Conclusion.

A market is growing to meet consumer demand for in-flight broadband services. Verizon Airfone wants to offer consumers broadband services but cannot under the current regulatory rules. The Commission should therefore modify its existing rules and grant Airfone an "exclusive use" license to operate in the commercial air-ground spectrum in order to provide broadband services.

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